Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

ECOLOGICAL NOTE ON THE BIRDS OBSERVED AT THE BIOLOGICAL STATION OF THE UNIVERSITY OF MANITOBA

William Rowan
University of Alberta

It is seldom that one has the opportunity of studying a number of well-defined habitats of birds in a small circle of two miles diameter, and of determining how far these habitats overlap and to what extent they are correlated and interchangeable. This opportunity arose so admirably in June and July of 1920 at the new Biological Station of the Manitoba University at Indian Bay, Shoal Lake, Lake of the Woods, Manitoba, that I am tempted herewith to outline the main characteristics that future students may investigate them further.

The Biological Station is situated at Waugh (Indian Bay), the terminus of the Greater Winnipeg Water District Railway. For the last two years Winnipeg has received its entire water supply from Shoal Lake. Since the present railway service leaves much to be desired, and is but little patronized by holiday makers, Indian Bay still enjoys its pristine wildness. Despite the efforts of the Indian School on Snowshoe Bay, the Indians are much the same as they have always been. There is a small permanent population of white men in connection with the water works and railway, but they are busy men and have disturbed the wild life of the place but little. This year the Biological Station has therefore offered a unique chance of studying the natural bird life of the district. Only a single artificial factor had to be considered—the large gravel pit which supplied the materials for the dyke built across Falcon Bay. Future students will be able to note the changes that are bound to occur in the avifauna of the place as the railway service improves, and brings with it the inevitable campers, and perhaps even enterprising agriculturists.

The buildings of the Biological Station are situated on the edge of Indian Bay. Within a mile can be studied at least seven well-defined faunal habitats. These are:

1. The lake itself.
2. The forest surrounding the lake.
3. The muskeg lying beyond the belt of forest.
4. Several small marshes.
5. The gravel pit.
6. The islands of the lake.
7. The scrub.

These were studied from the point of view of feeding and nesting zones. Out of the seven enumerated, only two were entirely self-supporting—*i.e.*, only two contained nesters that found all they required within their nesting area—and were not forced to wander into other zones.

The lake was one. True, it was used as a feeding area by numerous species, and as a nesting zone by comparatively few, but such as they were, the latter found the lake all-sufficient for their needs. They included only a few ducks and an odd pair or two of loons. Grebes of any sort appeared to be absent. Black terns were abundant, but their breeding quarters were located on Snake Lake more than a mile from Indian Bay. Why they came so far and in such numbers to feed was not definitely ascertained. Their own lake was apparently as well suited, but it was more or less choked with wild rice, and this may have been a determining factor. As soon as the young could fly they were escorted to Shoal Lake and stayed there.

The forest on the edge of the lake was the most important of the seven habitats, in that it held a greater number of nesting species than any other. Of these the small birds found in it all that they required. Insect life was abundant and berries were plentiful. A number of sparrows and warblers were characteristic of the forest, but particularly the white-throated sparrow, white-and-black warbler, and redstart. The red-eyed vireo, crow, and ruby-throated humming bird were perhaps equally ubiquitous. The ruffed grouse, robin, hermit and veery thrushes, oven bird, chickadee, and purple finch, if less plentiful, were very characteristic. The various woodpeckers belonged to this zone, but they recognized subdivisions not known to the other species. The downy was perhaps the only one that was general throughout, patronizing wet and dry areas alike. It extended right into the dead-tree areas of the muskeg itself. The hairy, flicker, and sapsucker—the last in the greatest numbers—were fairly general, the three-toed arctic and pileated being by far the scarcest and very local. Both seemed to be confined to the large tree areas. But all of these nested and lived entirely within their own zone. It was amongst the larger species that the majority of nesters occurred that had to travel afield for their food supply. Most notable were the osprey, turkey buzzard, and great blue heron. The ospreys, living entirely on fish, had to hunt over the lake. On windy days they would travel systematically round the borders of the bay, searching for quiet spots in which they could see their prey. The herons often traveled far afield to satisfy their needs, sometimes even visiting the small marsh referred to below, two miles from their home. The turkey buzzards regularly carried out huge peregrinations in search of food, mostly on the edge of the bay.

Another breeder of the forest, whose nesting sites were confined to the small lichen-covered patches of rock, the nighthawk, appeared also to get his main supplies far afield, though when the young had hatched these excursions were much curtailed. This rather suggests that these flights savored as much of pleasure as they did of necessity. This assumption is borne out by the fact that scores of these birds, during the incubating period, would sit for lengthy stretches of time in the mornings and the evenings between the metals on the railway track, but did not deposit eggs there. This habit appeared to play part in a social function of sorts, but it also ceased when the eggs were hatching.

The great horned owl, represented by but a single pair, was located on the edge of the muskeg and they may indeed have done some of their hunting over it, but their loud hootings were heard always in a small circle round their presumed home. They were in all probability true denizens of the forest.

The muskeg, by far the most extensive of the seven habitats, stretching as it did forty miles or more to the west and north, was, ornithologically speaking, extremely poor. Four species only were found to be constant to it—the short-billed marsh wren, swamp sparrow, kingbird, and Maryland yellow-throat. Mostly of the type known as floating muskeg, it resembled a huge meadow, all of which was well stocked with the two first of these species. Here and there on the more stable parts were clumps of bushes. These provided nesting places for the last two. All four were found to be stay-at-home birds, but only the wren was found here and nowhere else. A few yellow-throats and kingbirds were seen elsewhere, although the percentage of those outside the muskeg was small. Ducks may have nested here also, but we got no evidence to that effect. Two trips were made through extensive stretches of this habitat, one at the end of June, the other at the close of July. On the first no ducks at all were seen, while on the latter they were plentiful with well-grown young. These may have, and probably did, swim down the river from the little lakes connected with the muskeg.

An interesting feature of the muskeg was the frequent outcroppings of rock forming small heavily timbered islands. Owing to lack of equipment in this the first year of the Biological Station, in the matter of boats and canoes, the muskeg was rather neglected, and the fauna of these islands was never investigated. That they harbored numerous hawks, such as the broad-winged and probably the red-shouldered, is certain. These were not found nesting in the forest proper.

Here and there within the area occurred small marshes. These differed from the muskeg in consisting of patches of open water with rushes and flags as the characteristic plants. A canoe was portaged to one of these lying to the north of the railway track and about a mile from the Biological Station, and a number of days were devoted to the study of its avifauna. Its nesting inhabitants included the following: mallard, bittern, coot, Carolina and Virginia rails, long-billed marsh wren, red-winged blackbird, and swamp sparrow. With the exception of the blackbirds and to some extent the bittern, all these birds bred and fed within their own zone. The bittern used to make regular trips to the adjoining Falcon Bay, where the crayfish, one of his staple foods, was abundant. These flights were taken with monotonous regularity at certain hours of the morning and evening. A large percentage of his food was, however, obtained in the marsh itself. The redwings regularly hunted in the brush on the edge of the lake, scores even crossing to some of the islands two miles or more from their breeding station.

Many long hours were spent in this mosquito-ridden marsh, hidden in the bottom of a reed-covered canoe, to obtain notes on the habits of its birds. It was intended to spend at least one night here, but without mosquito netting, an impossibility when binoculars and a gun have to be used, no man could have stood it and remained sane. As an alternative several afternoons and evenings till nightfall were spent on the spot, the watch being resumed again at 2.30 in the morning. One thing is certain as the result of these investigations—the supposedly nocturnal rails are anything but nocturnal, at this time of year at all events. At about sundown every rail disappeared. The coots, too, became quiet, and the crying of the nighthawk overhead and the booming of the bittern from the heart of the reeds were the only sounds that broke the evening stillness. In the mornings as the marsh was approached, with the first gray streak of dawn just showing in the east, never a sound came from it. Twice a list was made of bird notes in the order in which they were heard. Since both lists coincide very well, it may be worth while quoting: song sparrow, swamp sparrow, red-eyed vireo, redwing, kingfisher, rails, goldfinch, coot, long-billed marsh wren, olive-sided flycatcher, kingbird, short-billed marsh wren, swift, rough-winged swallow, mallard, yellow warbler. Nighthawks were about from the time of arrival and remained in view till an hour after sunrise. In contrast to their evening flights, these birds were, as a rule, entirely silent in the mornings. Of the whole list many were, of course, not nesters in the marsh, but all nested within a short distance of it. The short-billed marsh wren did not nest here, but in the muskeg across the railway track, while the long-billed species was never found nesting in the muskeg, but always in true marsh. The swamp sparrow was common to both.

The song sparrow was invariably the first bird heard and began to sing as soon as the first signs of day appeared. No sight or sound of the rails was ever apparent until sunrise, and it was not till an hour later that they appeared in any numbers. Thence onwards for about two hours they were at their liveliest, all coming out to feed on the open edges. During the middle of the day they retreated, becoming noisy again about two hours before sunset. But with the fall of night they and the coots with them retired like all other birds. Soon after sunrise the bitterns also came forth to feed. It was a rare treat to watch these ungainly birds, in the company of coots and two species of rail, besporting themselves within a few yards of the hidden canoe. The long-billed marsh wren was very secretive the whole time. Very few good views of it were obtained. Even its singing was done in the heart of the reeds instead of from the top of some tall vantage point as in the case of its short-billed relative of the muskeg.

Except for the birds that bred in the marsh, it was little used as a feeding ground. The olive-sided flycatcher, which had its nest presumably in a clump of dead trees adjoining, much patronized by the tree swallow, hawked it regularly, as did the swallows also. Rough-winged swallows were occasional visitors. Once in a while the great blue heron put in an appearance.

Another small habitat of exceptional interest was found in the gravel pit. This is about a quarter of a mile in length and some hundred yards across, with banks between twenty and thirty feet high. Its bottom was at first marshy, but, owing to the dry summer, it subsequently became solid. Artificial and man-made, it illustrated well the ever-interesting fact, both botanically and faunistically, that all living things are ready and waiting to colonize any new suitable ground that may offer. The pit is only a few years old, yet it already has a rich flora. In this district open areas (excepting those of muskeg and rock) and sand banks are entirely wanting. Hence one would not expect birds requiring these conditions to occur here. The gravel pit has, however, provided both for the last year or two. As a result it has attracted to itself an avifauna quite peculiar, if somewhat meager. But its very small area must be taken into account; for its size it has done remarkably well. Had time permitted it would have been of the utmost interest to investigate the insect life of the zone. No doubt some peculiar species would have been found. Of birds it could boast three kinds entirely to itself. It held the only pair of vesper sparrows in the district. These lovers of open spaces had their nest at the foot of one of the banks. The east bank housed a flourishing little colony of rough-winged swallows, the only ones of their kind. The only spotted sandpiper collected within many miles of the station was secured here. It was one of a pair and proved to be the female, ready to lay. This was late in the season and the birds had evidently been disturbed elsewhere and were seeking new quarters. Had they been left alone, they would no doubt have bred in the pit, the only suitable site in the locality.

Though the kingfisher has probably nested at Indian Bay from time immemorial, there is just as little doubt that it has never bred in such numbers as of recent years, for the simple reason that the rocky edges of the lake did not offer enough nesting sites. The gravel pit, with its soft, sandy sides, was, however, conveniently dug, and it now holds what might almost be termed a colony of kingfishers. More than a dozen nesting holes were in use here this year, and the bird is now one of the most prominent at the station. In this connection it is interesting to note that here and there in the forest other small sandpits have been dug. These were experimental in nature and left as dug, many of them only a few feet across, with banks about eighteen inches high. All of these, some more than a mile from the lake, held each its pair of breeding kingfishers, a further example of colonizing ability.

The gravel pit was much used as a feeding ground by birds from other zones, particularly before it dried up. With the bronzed grackles it was a particularly favored hunting area; goldfinches and siskins patronized it regularly; bitterns came from time to time; the ubiquitous song sparrow fed here, but apparently did not breed. This was one of the few spots on which the house sparrow was regularly to be seen. It bred in very limited numbers on the railway buildings adjoining.

Two zones remain to be mentioned, neither of which was worked out fully. By scrub I mean those areas on which the trees have been felled and have not yet been replaced by full growths, and the natural scrub fringing the marshes and the muskeg. The latter was not extensive, nor was it as well defined as the others. It should probably be further subdivided. Characteristic birds were the catbird, Maryland yellow-throat, goldfinch, rose-breasted grosbeak, chestnut-sided warbler, song sparrow, yellow warbler, black-billed cuckoo, chipping sparrow, cedar waxwing, and marsh hawk. The first three showed a distinct preference for the brush on the water's edge. Of the others, some favored brush interspersed with trees, but none was found in the forest proper.

As a habitat the islands need a great deal more scrutiny. All were well stocked with birds, the redstart, song sparrow, and crow being perhaps the most widely distributed. A few species were noted on the islands that were never observed on the mainland. They include the palm warbler, yellow-bellied flycatcher, and water thrush. The olive-backed thrush, comparatively scarce on the mainland, occurred on several of the islands.

A few birds showed no preference for any of the above zones and are difficult to place. They include the chimney swift, which nested in the chimney of one of the Biological Station buildings and in some numbers on the railway water tank; the phoebe, which seemed to nest anywhere and everywhere on buildings and fallen tree trunks; the bronzed grackle, of which there was one large colony in a patch of swampy scrub freely sprinkled with trees; the tree swallow, sharing the ground of the grackle and nesting also elsewhere, *e.g.*, telephone poles, mostly on open sites; and lastly the house wren, not plentiful, but nesting in the most unlikely and unclassifiable places.

The total number of species observed during the summer was almost 106.[1] Of these nearly 90 were in all probability breeders. In the above notes only those are included which were found in sufficient numbers to give one a definite idea as to the zones they preferred.

---

[1] "The Auk," Vol. 39, No. 2, April, 1922.